

REVISIONS TO THE STATE IMPLEMENTATION PLAN (SIP)
FOR THE CONTROL OF OZONE AIR POLLUTION

ATTAINMENT DEMONSTRATION FOR THE
BEAUMONT/PORT ARTHUR OZONE NONATTAINMENT AREA

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
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PROJECT NO. 2004-053-SIP-AI

OCTOBER 27, 2004

SECTION V: LEGAL AUTHORITY

A. General

The TCEQ has the legal authority to implement, maintain and enforce the national ambient air quality standards.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superceded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The Legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997 and 1999. In 1989, the TCAA was codified as Chapter 382 of the Texas Health & Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) is the state air pollution control agency and is principal authority in the state on matters relating to the quality of air resources. In 1991, the Legislature abolished the TACB effective September 1, 1993 and its powers, duties, responsibilities and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both parts of the Texas Water Code and the TCAA. Specifically, the authority of the TNRCC is found in Chapters 5 and 7. Chapter 5, Subchapters A - F, and H - J and L, include the general provisions, organization and general powers and duties of the TNRCC, and the responsibilities and authority of the Executive Director. This Chapter also authorizes the TNRCC to implement action when emergency conditions arise, and to conduct hearings. Chapter 7 gives the TNRCC enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013, and changed the name of the TNRCC to the Texas Commission on Environmental Quality (TCEQ).

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing an developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; conduct research and investigations; enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the Federal Government; to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the Commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA, the rules or orders of the Commission.

B. Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the SIP. The rules listed below have previously been submitted as part of the SIP.

Statutes

TEXAS HEALTH & SAFETY CODE, Chapter 382

September 1, 2001

TEXAS WATER CODE

September 1, 2001

All sections of each subchapter are included, unless otherwise noted.

Chapter 5: Texas Natural Resource Conservation Commission

Subchapter A: General Provisions

Subchapter B: Organization of the Texas Natural Resource Conservation Commission

Subchapter C: Texas Natural Resource Conservation Commission

Subchapter D: General Powers and Duties of the Commission

Subchapter E: Administrative Provisions for Commission

Subchapter F: Executive Director (except §§ 5.225, 5.226, 5.227, 5.2275, 5.232, and 5.236)

Subchapter H: Delegation of Hearings

Subchapter I: Judicial Review

Subchapter J: Consolidated Permit Processing

Subchapter L: Emergency and Temporary Orders (§§ 5.514, 5.5145 and 5.515 only)

Chapter 7: Enforcement

Subchapter A: General Provisions (§§ 7.001, 7.002, 7.0025, 7.004, 7.005 only)

Subchapter B: Corrective Action and Injunctive Relief (§ 7.032 only)

Subchapter C: Administrative Penalties, §§ 7.051- 7.075

Subchapter E: Criminal Offenses and Penalties: §§ 7.177, 7.179-7.181

Rules

All of the following rules are found in Title 30, Texas Administrative Code, as of the following effective dates:

Chapter 7, Memoranda of Understanding, §§ 7.110 and 7.119

May 2, 2002

Chapter 35, Subchapters A-C, K: Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions

December 10, 1998

Chapter 39, Public Notice, §§ 39.201; 39.401; 39.403(a) and (b)(8)-(10); 39.405(f)(1) and (g); 39.409; 39.411 (a), (b)(1)-(6) and (8)-(10) and ©(1)-(6) and (d); 39.413(9), (11), (12) and (14); 39.418(a) and (b)(3) and (4); 39.419(a), (b),(d) and (e); 39.420(a), (b) and ©(3) and (4); 39.423 (a) and (b); 39.601; 39.602; 39.603; 39.604; and 39.605

September 23, 1999

Chapter 55, Request for Contested Case Hearings; Public Comment, §§ 55.1; 55.21(a) - (d), (e)(2), (3) and (12), (f) and (g); 55.101(a), (b), ©(6) - (8); 55.103; 55.150; 55.152(a)(1), (2) and (6) and (b); 55.154; 55.156; 55.200; 55.201(a) - (h); 55.203; 55.205; 55.206; 55.209 and 55.211

October 20, 1999

Chapter 101: General Air Quality Rules	October 20, 2002
Chapter 106: Permits by Rule, Subchapters A and B	October 20, 2002
Chapter 111: Control of Air Pollution from Visible Emissions and Particulate Matter (formerly known as Regulation I), except amendments effective September 16, 1996 and June 11, 2000	June 11, 2000
Chapter 112: Control of Air Pollution from Sulfur Compounds (formerly known as Regulation II)	July 16, 1997
Chapter 113, §113.120, Subchapter A: Control of Air Pollution from Toxic Materials (formerly known as Regulation III)	July 9, 2000
Chapter 114: Control of Air Pollution from Motor Vehicles (formerly known as Regulation IV)	May 28, 2002
Chapter 115: Control of Air Pollution from Volatile Organic Compounds (formerly known as Regulation V)	May 16, 2002
Chapter 116: Permits for New Construction or Modification (formerly known as Regulation VI)	October 20, 2002
Chapter 117: Control of Air Pollution from Nitrogen Compounds (formerly known as Regulation VII)	April 4, 2002
Chapter 118: Control of Air Pollution Episodes (formerly known as Regulation VIII)	March 5, 2000
Chapter 122, § 122.122: Potential to Emit	September 20, 1993

LIST OF ACRONYMS

ACT - Alternative Control Techniques
AFV - Alternative Fuel Vehicle
AIRS - Aerometric Information Retrieval System
APA - Administrative Procedure Act
ARACT - Alternate Reasonably Available Control Technology
ARPDB - Acid Rain Program Data Base
ASC - Area Source Categories
ASE - Alliance to Save Energy
ASM - Acceleration Simulation Mode
ATC - Air Traffic Control
BACT - Best Available Control Technology
BEIS-2 - Biogenic Emissions Inventory System, version2
BELD - Biogenic Emissions Land Cover Database
BIOME - Biogenic Model for Emissions
BPA - Beaumont/Port Arthur
Cal LEV - California Low Emission Vehicle
CAM - Compliance Assurance Monitoring
CAMS - Continuous Air Monitoring Station
CAMx - Comprehensive Air Model with Extensions
CARB - California Air Resources Board
CARE - Clean Air Responsibility Enterprise
CB-IV HC - Carbon Bond IV Hydrocarbon
CFR - Code of Federal Regulations
CEMS - Continuous Emissions Monitoring System
CMAQ - Congestion Mitigation and Air Quality
CMSA - Consolidated Metropolitan Statistical Area
CNG - Compressed Natural Gas
CO - Carbon Monoxide
COAST - Coastal Oxidant Assessment for Southeast Texas
CTG - Control Technique Guidelines
DART - Dallas Area Rapid Transit
DFW - Dallas/Fort Worth
DFWN - Dallas/Fort Worth North
DFWRTM - Dallas/Fort Worth Regional Travel Model
DOW - Day of Week
DRI - Desert Research Institute
DV - Design Value
EGAS - Economic Growth Analysis System
EGF - Electric Generating Facilities
EI - Emissions Inventory
EIQ - Emissions Inventory Questionnaire
ELP - El Paso
EPA - U.S. Environmental Protection Agency
EPN - Emission Point Number

ERC - Emission Reduction Credit
ETR - Employer Trip Reduction
FAA - Federal Aviation Administration
FCAA - Federal Clean Air Act
FMVCP - Federal Motor Vehicle Control Program
FR - Federal Register
FTP - File Transfer Protocol
GIS - Geographic Information System
g/hp-hr - Grams Per Horsepower-Hour
GloBEIS - Global Biosphere Emissions and Interactions System
GSE - Ground Support Equipment
HAP - Hazardous Air Pollutant
HARC - Houston Advanced Research Center
HAXL - Houston Air Excellence in Leadership
HB - House Bill
HC - Hydrocarbon
HDD - Heavy-duty Diesel
HDDV - Heavy-duty Diesel Vehicle
HDEWG - Heavy Duty Engine Working Group
HDV - Heavy-duty Vehicle
HGB - Houston/Galveston/Brazoria
H-GAC - Houston-Galveston Area Council
HON - Hazardous Organic NESHAPS
HOV - High Occupancy Vehicle
HP - Horsepower
HPMS - Highway Performance Monitoring System
HRM - Houston Regional Monitoring
IIG - Interim Implementation Guidance
IIP - Interim Implementation Plan
I/M - Inspection and Maintenance
INIT - Initial Condition Tracer
ITWS - Integrated Terminal Weather System
IWW - Industrial Wastewater
KG/HA - Kilograms/hectare
KM - Kilometer
LDT - Light-duty Truck
LED - Low Emission Diesel
LEV - Low Emission Vehicle
LNG - Liquefied Natural Gas
m - Meter
MACT - Maximum Achievable Control Technology
MAPPER - Measurement-based Analysis of Preferences in Planned Emissions Reductions
MERC - Mobile Emission Reduction Credit
MIR - Maximum incremental reactivity
MMBtu - Million British Thermal Unit
MPA - Metropolitan Planning Area
MY - Model Year

NAAQS - National Ambient Air Quality Standard
 NCDC - National Climatic Data Center
 NCTCOG - North Central Texas Council of Governments
 NEGU - Non-electric Generating Units
 NESHAPS - National Emission Standards for Hazardous Air Pollutants
 NEVES - Nonroad Engine and Vehicle Emission Study
 NLEV - National Low Emission Vehicle
 NNSR - Nonattainment New Source Review
 NO_x - Nitrogen Oxides or Oxides of Nitrogen
 NO_y - Nitrogen Species
 NSR - New Source Review
 NWS - National Weather Service
 O₃ - Ozone
 OAQPS - Office of Air Quality Planning and Standards
 OBD - On-Board Diagnostics
 OSAT - Ozone Apportionment Technology
 OTAG - Ozone Transport Assessment Group
 PAMs - Photochemical Assessment Monitoring Sites
 PEI - Periodic Emissions Inventory
 PM₁₀ - Particulate Matter less than 10 microns
 ppb - Parts Per Billion
 ppm - Parts Per Million
 ppmv - Parts Per Million by Volume
 PSDB - Point Source Database
 PSIA - Pounds per Square Inch Absolute
 QA/QC - Quality Assurance/Quality Control
 RACT - Reasonably Available Control Technology
 RAQPC - Regional Air Quality Planning Committee
 RCTSS - Regional Computerized Traffic Signal System
 RFG - Reformulated Gasoline
 REMI - Regional Economic Modeling, Inc.
 ROP - Rate-of-Progress
 RSD - Remote Sensing Device
 RVP - Reid Vapor Pressure
 SB - Senate Bill
 SCAQMD - South Coast Air Quality Management District [Los Angeles area]
 SCC - Source Classification Code
 SCRAM - Support Center for Regulatory Air Models
 SETRPC - Southeast Texas Regional Planning Commission
 SIC - Standard Industrial Classification
 SIP - State Implementation Plan
 SO₂ - Sulfur Dioxide
 SO_x - Sulfur Compounds
 SOCM - Synthetic Organic Chemical Manufacturing Industry
 SP - Smog Production algorithm
 STARS - State of Texas Air Reporting System
 SULEV - Super-Ultra-Low Emission Vehicle

TAC - Texas Administrative Code
TACB - Texas Air Control Board
TAFF - Texas Alternative Fuel Fleet
TCAA - Texas Clean Air Act
TCEQ - Texas Commission on Environmental Quality (commission)
TCF - Texas Clean Fleet
TCM - Transportation Control Measure
TIP - Transportation Implementation Plan
TMC - Texas Motorist's Choice
TNMOC - Total nonmethane organic compounds
TNRCC - Texas Natural Resource Conservation Commission
TPOD - Tons Per Ozone Day
TPY - Tons Per Year
TSP - Total Suspended Particulate
TTI - Texas Transportation Institute
UAM - Urban Airshed Model
USDA - United States Department of Agriculture
USGS - United States Geological Survey
UTM - Universal Transverse Mercator
VAVR - Voluntary Accelerated Vehicle Retirement
VERP - Voluntary Emission Reduction Permit
VMAS - Vehicle Mass Analysis System
VMEP - Voluntary Mobile Source Emissions Reduction Program
VMT - Vehicle Miles Traveled
VNR or VNRAT- VOC-NO_x ratios
VOC - Volatile Organic Compound
WOE - Weight of Evidence

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CHAPTER 1: GENERAL

1.1 BACKGROUND

“The History of the Texas State Implementation Plan (SIP),” a comprehensive overview of the SIP revisions submitted to EPA by the State of Texas, is available at the following website:

<http://www.tnrc.state.tx.us/oprd/sips/sipintro.html#History>

The BPA 1-hour ozone nonattainment area consists of Hardin, Jefferson, and Orange Counties. The BPA area is classified as moderate and, therefore, was required to attain the 1-hour ozone standard of 0.12 parts per million by November 15, 1996. The BPA area did not attain the standard by that date and also did not attain the standard by November 15, 1999, the attainment date for serious areas.

On April 16, 1999, EPA proposed in the *Federal Register* to extend the BPA attainment date to November 15, 2007, based on its ozone transport policy in effect at the time. EPA’s transport policy provided that in determining the appropriate attainment date for an area, EPA may consider the effect of transport of ozone or its precursors from an upwind area which interferes with the downwind area’s ability to attain.

The first attainment demonstration SIP for BPA was adopted by the commission on October 27, 1999 and submitted to EPA by November 15, 1999. That SIP contained modeling for both transport and non-transport episodes, two VOC reasonably available control technology (RACT) rules, and a NO_x rule for lean-burn engines (Phase I).

On April 19, 2000, the commission adopted the final attainment demonstration SIP for BPA, which included Phase II of the NO_x reductions. The SIP included the following elements:

- A modeling demonstration showing 1) attainment of the 1-hour ozone standard and 2) transport of ozone and its precursors from Houston; and a request that BPA’s attainment date be extended to that of the Houston area (November 15, 2007) based on EPA’s ozone transport policy.
- A commitment to submit a mid-course review (MCR) to EPA by May 1, 2004.
- Rules implementing the control strategy. Since the majority of NO_x emissions in BPA come from large industrial point sources, the attainment demonstration SIP relies primarily on point source NO_x reductions.

EPA approved the BPA SIP on May 14, 2001, with an attainment date of November 15, 2007.

Environmental groups subsequently challenged EPA’s extension of attainment dates based on transport; BPA was one of three areas in the nation for which suits were filed. On December 11, 2002, the Fifth Circuit Court of Appeals ruled that EPA is not authorized by the FCAA to extend the area’s attainment date based on transport. On June 19, 2003, EPA proposed in the *Federal Register* to reclassify BPA to either serious or severe, with a November 2005 attainment date for either classification. Negotiations were held between the environmental litigants, BPA industries, EPA, and TCEQ to obtain commitments from BPA industries in providing voluntary reductions and other environmental benefits. EPA published final action in the *Federal Register* on March 30, 2004, reclassifying BPA to serious with an attainment date of November 2005. EPA’s final rule also withdrew the following for BPA:

- Motor Vehicle Emissions Budget (MVEB)
- Mid-course review commitment
- Finding that BPA has implemented all Reasonable Available Control Measures (RACM)

In addition, the state must submit a new attainment demonstration, showing attainment by 2005, within one year of the effective date of the action.

The requirements for the new attainment demonstration were set forth in EPA's March 30, 2004 *Federal Register* notice, as follows:

- Revise the Motor Vehicle Emissions Budget (MVEB) for 2005 using MOBILE6, EPA's mobile source emission factors model
- Perform post-1996 Rate of Progress (ROP) analyses for 1999, 2002, and 2005
- Perform a new Reasonably Available Control Measures (RACM) demonstration for 2007
- Activate contingency measures previously adopted under 15% ROP requirements
- Provide additional contingency measures as part of the SIP to meet post-1996 through 2005 ROP requirements

Current Revision

On April 15, 2004 EPA designated Beaumont-Port Arthur as a "marginal" nonattainment area under the 8-hour standard and promulgated the first phase of the 8-hour implementation rules. Section 51.905 of the 8-hour rules discusses the requirements that previously applied in an area for the 1-hour NAAQS which would continue to apply after revocation of the 1-hour NAAQS for that area as it transitions from the 1-hour to the 8-hour standard.

Section 51.905(a)(I) states that "the area remains subject to the obligation to adopt and implement the applicable requirements as defined in §51.900(f), except as provided in paragraph (a)(1)(iii) of this section, and except as provided in paragraph (b) of this section."

In this revision to the BPA SIP, the commission is addressing each of the applicable requirements as described below:

- (1) Reasonably available control technology (RACT)
The commission has evaluated the existing regulations for VOCs and NO_x and has determined that based upon a major source definition of 50 tpy, there are no additional sources in the BPA nonattainment area that are not already covered by the RACT requirements.
- (2) Inspection and maintenance programs (I/M)
Due to the size of the population centers in the BPA nonattainment area, inspection and maintenance was not previously required for the area.
- (3) Major source applicability cut-offs for purposes of RACT
The rule for batch processing (Chapter 115, Subchapter B, Division 6: Batch Processes, §115.167, relating to Exemptions) sets an exemption level of 100 tons per year VOC, based on all stationary sources included in an account. The commission staff will prepare recommendations for a proposal to amend this rule to lower the exemption level to 50 tons per year shortly after the current adoption.
- (4) Rate of Progress (ROP) reductions
The commission is submitting as a part of the SIP revision ROP reductions for 1999, 2002 and 2005 which are in excess of the target reductions for those years.

- (5) Stage II vapor recovery
Stage II vapor recovery is already in place in the BPA nonattainment area.
- (6) Clean fuels fleet program under section 183(c)(4) of the FCAA
The commission will consider amending its existing Clean Fuel Fleet SIP subsequent to the current adoption.
- (7) Clean fuels for boilers under section 182(e)(3) of the FCAA
This is a severe area requirement and therefore not applicable for BPA.
- (8) Transportation Control Measures (TCMs) during heavy traffic hours as provided under section 182(e)(4) of the FCAA
This is an extreme area requirement and therefore not applicable for BPA.
- (9) Enhanced (ambient) monitoring under section 182(c)(1) of the FCAA
BPA has an enhanced ambient monitoring station, established at the Jefferson County airport, in accordance with section 182(c)(1).
- (10) Vehicle miles traveled provisions of section 182(d)(1) of the FCAA
This is a severe area requirement and therefore is not applicable to BPA.
- (11) NO_x requirements under section 182(f) of the FCAA.
As discussed in the RACT section above, BPA has met the NO_x requirements under section 182(f).

Section 51.905(a)(ii) states that if the area has not met its obligation to have a fully-approved attainment demonstration SIP for the 1-hour NAAQS, the State must comply with one of the following:

- (A) Submit a 1-hour attainment demonstration no later than 1 year after designation;
- (B) Submit an RFP plan for the 8-hour NAAQS no later than 1-year following designations for the 8-hour NAAQS providing a 5 percent increment of emissions reduction from the area's 2002 emissions baseline, which must be in addition to measures (or enforceable commitments to measures) in the SIP at the time of the effective date of designation and in addition to national or regional measures and must be achieved no later than 2 years after the required date for submission (3 years after designation).
- (C) Submit an 8-hour ozone attainment demonstration no later than 1 year following designations that demonstrates attainment of the 8-hour NAAQS by the area's attainment date; provides for 8-hour RFP for the area out to the attainment date; and for the initial period of RFP for the area (between 2003-2008), achieves the emission reductions by December 31, 2007.

The commission is addressing this requirement by submitting an 8-hour attainment demonstration in accordance with option (C). As discussed in Chapter 3, using the EPA 8-hour computation procedures, the highest DVf (monitor specific future Design Value) is 82 ppb, which is below the 8-hour standard of 85 ppb. Therefore, the 8-hour Future Case Design Value calculation indicates that the BPA area will be in compliance with the 8-hour ozone standard in 2007.

As a marginal area, there is no requirement for an additional RFP submittal, and therefore this SIP revision meets the requirements laid out in option (C) above.

Section 51.905(a)(iii) states that if the area has an outstanding obligation for an approved 1-hour ROP SIP, it must develop and submit to EPA all outstanding 1-hour ROP plans; where a 1-hour obligation overlaps with an 8-hour RFP requirement, the State's 8-hour RFP plan can be used to satisfy the 1-hour ROP obligation if the 8-hour RFP plan has an emission target at least as stringent as the 1-hour ROP emission target in each of the 1-hour ROP target years for which the 1-hour ROP obligation exists.

As stated in the applicable requirement discussion, this SIP revision includes the 1-hour ROP obligations that exist as a result of the recent reclassification to serious.

There were some additional requirements for the new attainment demonstration set forth in EPA's March 30, 2004 *Federal Register* notice which are not specifically addressed in the section of the 8-hour implementation rule that discusses the transition from the 1-hour to the 8-hour standard. The following discussion lists these requirements and describes how they are addressed in the current SIP revision:

- a) Revise the Motor Vehicle Emissions Budget (MVEB) for 2005 using MOBILE6, EPA's mobile source emission factors model

The early 8-hour attainment demonstration includes the MVEB for the attainment year and therefore satisfies this requirement.

- b) Perform a new Reasonably Available Control Measures (RACM) demonstration for 2007

The commission will prepare recommendations for proposal of the RACM analysis for the commission's consideration shortly after the current adoption.

- c) Activate contingency measures previously adopted under 15% ROP requirements

The commission does not believe that implementation of the adopted contingency rule for marine vessel loading represents the best solution for meeting the BPA area's air quality goals. The commission will identify and implement reductions equivalent to the adopted contingency rule plans, possibly by the commitment of additional resources to the Texas Emissions Reduction Program (TERP), or achieved through other control measures such as the portable fuel container rule. The commission is preparing recommendations for the commission to considering in proposing to repeal the contingency rule for marine vessel loading shortly after the current attainment demonstration SIP has been adopted.

- d) Provide additional contingency measures as part of the SIP to meet post-1996 through 2005 ROP requirements.

As demonstrated in the ROP SIP, the reductions quantified are in excess of the ROP target and meet the contingency measure requirement.

1.2 PUBLIC HEARING INFORMATION

The commission held public hearings at the following time and locations:

CITY	DATE	TIME	LOCATION
Houston	August 2, 2004	1:30 p.m. 5:30 p.m.	City Hall Council Chambers 901 Bagby
Beaumont	August 3, 2004	10:30 a.m.	John Gray Institute 855 East Florida Avenue
Austin	August 5, 2004	9:30 a.m.	Texas Commission on Environmental Quality 12100 Park 35 Circle Building F, Room 2210

Written comments were also accepted via mail and fax through 5:00 pm August 9, 2004.

1.3 SOCIAL AND ECONOMIC CONSIDERATIONS

Because rulemaking was not a part of this SIP revision, the state has not performed an analysis of social and economic considerations.

1.4 FISCAL AND MANPOWER RESOURCES

The state has determined that its fiscal and manpower resources are adequate and will not be adversely affected through the implementation of this plan.

CHAPTER 2: EMISSIONS INVENTORY

2.1 OVERVIEW

The 1990 Amendments to the FCAA require that EIs be prepared for ozone nonattainment areas. Because ozone is produced by photochemical reactions in the atmosphere when VOCs are mixed with NO_x and CO¹ in the presence of sunlight, it is important that the planning agency compile information on the important sources of these precursor pollutants. It is the role of the EI to identify the source types present in an area, the amount of each pollutant emitted, and the types of processes and control devices employed at each plant or source category. The EI provides data for a variety of air quality planning tasks, including establishing baseline emission levels, calculating reduction targets, control strategy development for achieving the required emission reductions, emission inputs into air quality simulation models, and tracking actual emission reductions against the established emissions growth and control budgets. The total inventory of emissions of VOC and NO_x, for an area is summarized from the estimates developed for five general categories of emissions sources, which are each explained below.

2.2 POINT SOURCES

In nonattainment areas, major point sources are defined for inventory reporting purposes as industrial, commercial, or institutional sources which emit actual levels of criteria pollutants at or above the following amounts: 10 tpy of VOC, 25 tpy of NO_x, or 100 tpy of any of the other criteria pollutants, including CO, SO_x, PM₁₀, or lead. For the attainment areas of the state, any company that emits a minimum of 100 tpy of any criteria pollutant must complete an inventory. Additionally, any source that generates or has the potential to generate at least 10 tpy of any single HAP or 25 tpy of aggregate HAPs is also required to report emissions to the commission.

To collect emissions and industrial process operating data for these plants, EIQs are mailed to all sources identified as having triggered the level of emissions. Companies are asked to report not only emissions data for all emissions generating units and emission points, but also the type and, for a representative sample of sources, the amount of materials used in the processes that result in emissions. Information is also requested in the EIQ on process equipment descriptions, operation schedules, emissions control devices currently in use, abatement device control efficiency, and stack parameters such as location, height, and exhaust gas flow rate. All data submitted via the EIQ are then subjected to quality assurance procedures and entered into the State of Texas Air Reporting System (STARS)

2.3 AREA SOURCES

To capture information about sources of emissions that fall below the point source reporting levels and are too numerous or too small to identify individually, emissions from these sources are estimated on a source category or group basis. Area sources include commercial, small-scale industrial, and residential categories of sources that use materials or operate processes that can generate emissions. Area sources can be divided into two groups characterized by the emission mechanism: hydrocarbon evaporative emissions or fuel combustion emissions. Examples of sources of evaporative losses include printing, industrial coatings, degreasing solvents, house paints, leaking underground storage tanks, gasoline service station underground tank filling, and vehicle refueling operations. Fuel combustion sources include stationary source fossil fuel combustion at residences and businesses, as well as outdoor burning, structural fires, and wildfires. These emissions, with some exceptions, may be calculated by

¹CO plays a relatively minor role in ozone formation compared to VOC and NO_x.

multiplication of an established emission factor (emissions per unit of activity) times the appropriate activity or activity surrogate responsible for generating emissions. Population is the most commonly used activity surrogate for many area source categories, while other activity data include amount of gasoline sold in an area, employment by industry type, and acres of cropland.

The forecasting years' emissions inventories were compiled by using the EPA Economic Growth Analysis System (EGAS) growth factors for each area source category. This is the standard and accepted method for developing future year emissions inventories. The EGAS contains individual growth factors for each category for each forecasting year.

2.4 NON-ROAD MOBILE SOURCES

Non-road mobile sources are a subset of the area source category. This subcategory includes aircraft operations, marine vessels, recreational boats, railroad locomotives, and a very broad category of non-road equipment that includes everything from 600-horsepower engines mounted on construction equipment to 1-horsepower string trimmers. Calculation methods for emissions from non-road engine sources are based on information about equipment population, engine horsepower, load factor, emission factor, and annual usage. Emission estimates for all sources in the non-road category except aircraft, diesel construction equipment, and airport support equipment were originally developed by a contractor to EPA's Office of Transportation Air Quality as a 1990 emissions inventory for all nonattainment areas classified as serious and above. Aircraft emissions were estimated from landings and takeoff data for airports used in conjunction with a suitable aircraft emissions model (FAAED or EDMS).

2.5 ON-ROAD MOBILE SOURCES

On-road mobile sources consist of automobiles, trucks, motorcycles, and other motor vehicles traveling on public roadways in the nonattainment area. Combustion-related emissions are estimated for vehicle engine exhaust; and evaporative hydrocarbon emissions are estimated for the fuel tank and other evaporative leak sources on the vehicle. Emission factors have been developed using the newest version of EPA's mobile emissions factor model, MOBILE6. Various inputs are provided to the model to simulate the vehicle fleet driving in each particular nonattainment area. Inputs include such parameters as vehicle speeds by roadway type, vehicle registration by vehicle type and age, percentage of vehicles in cold start mode, percentage of miles traveled by vehicle type, type of I/M program in place, and gasoline vapor pressure. All of these inputs have an impact on the emission factor calculated by the MOBILE model, and every effort is made to input parameters reflecting local conditions. To complete the emissions estimate the emission factors calculated by the MOBILE model must then be multiplied by the vehicle miles traveled, VMT. The level of vehicle travel activity is developed from travel demand models run by the Texas Department of Transportation (TTI). The travel demand models have been validated against a large number of ground counts of traffic passing over counters placed in various locations throughout each county. Estimates of VMT are often calibrated to outputs from the federal HPMS, which is a model built from a smaller number of traffic counters. Finally, roadway speeds, which are required for the MOBILE model's input, are calculated by a post-processor to the travel demand model.

The BPA on-road mobile source emissions inventory was developed under contract by TTI. Task 1 of TTI's work order called for preparation of a link-based, bottom-up, onroad mobile source inventory for BPA, using EPA's MOBILE6 model.

2.6 MOTOR VEHICLE EMISSIONS BUDGETS

Motor vehicle emission budgets (MVEB) refer to the maximum allowable emissions from on-road mobile sources, and are determined for each applicable criteria pollutant or precursor as defined in the SIP. These budgets must be used in transportation conformity analyses. In order to pass the budget test, areas must demonstrate that the estimated emissions from transportation plans, programs, and projects do not exceed the MVEB(s). Only technology-related measures, such as I/M, cleaner fuels, and use restrictions/incentives may be included as on-road mobile source control measures. Measures that could limit future highway construction, such as growth restrictions, may not be included. Two types of MVEBs are calculated for the current SIP revision: Rate-of-Progress (ROP) budgets and attainment budgets. An ROP budget for 2005 has been developed using MOBILE6, EPA's most recent mobile source emission factor model.

The requirement for ROP plans was established by the 1990 FCAA Amendments to ensure continued progress toward achieving the 1-hour ozone standard. The ROP plan must demonstrate that specific reductions of emissions of VOC and/or NO_x from the 1990 baseline have been achieved, accounting for growth occurring after 1990, accompanied by rules to implement these reductions. The 2005 ROP budget is shown in Table 2.6-1. For more information on the background and calculation of these ROP MVEBs, see the concurrent adoption entitled "Post-1999 Rate-of-Progress Plan for the Beaumont-Port Arthur Nonattainment Area."

**Table 2.6-1
2005 ROP Budget for BPA**

Year	NO _x (tpod)	VOC (tpod)
2005	33.97	12.59

The above-referenced ROP SIP revision contains 1-hour ROP demonstrations for 2002 and 2005 which include a motor vehicle budget component. The current BPA attainment SIP revision also includes 8-hour modeling for 2007 which also contains a motor vehicle component.

While it is still uncertain how EPA intends to allow existing 1-hour budgets to be used for conformity purposes, or which year an 8-hour attainment MVEB is allowed to be established for, TCEQ is adopting these budgets in the event that one of them may be used in future conformity determinations. Table 2.6-2 shows the modeled 2007 onroad mobile source NO_x and VOC inventory numbers for August 30, which was selected as the most representative "average weekday."

**Table 2.6-2
2007 MVEB for BPA**

Year	NO _x (tpod)	VOC (tpod)
2007	24.32	10.55

2.7 BIOGENIC SOURCES

Biogenic sources are another subset of area sources which includes hydrocarbon emissions from crops, lawn grass, and forests, as well as a small amount of NO_x emissions from soils. Plants are sources of VOC such as isoprene, monoterpene, and alpha-pinene. Tools such as satellite imaging for mapping of vegetative types, field biomass surveys, and computer modeling of emissions estimates based on emission factors by plant species (PCBEIS-2) are used to provide the best estimates possible. Emissions from biogenic sources, using the latest information, are subtracted from the inventory prior to determining any required reductions for a rate of progress plan. However, the biogenic emissions are important in determining the overall emissions profile of an area and therefore are required for regional air quality dispersion modeling.

2.8 EMISSIONS SUMMARY

The August 30, 2000 base case emissions inventory summary for the BPA nonattainment area is included in Figures 2.8-1 and 2.8-2 for VOC and NO_x, respectively. Contributions from VOC emission sources in descending order are as follows: biogenic sources 83%; point sources 9%; area and non-road sources 5%; and on-road mobile sources 3%. Contributions from NO_x emissions sources in descending order are as follows: point sources 59%; on-road mobile 25%; area and non-road sources 15%; and biogenic sources 1%.

The 2007 future base case emission inventory for the BPA nonattainment area is summarized in Figures 2.8-3 and 2.8-4 for VOC and NO_x, respectively. The 2007 emissions inventory is estimated based on projections from the 2000 base case inventory. Contributions from VOC sources in the 2007 inventory consist of the following: biogenic sources 84%; point sources 10%; area and non-road sources 5%; and on-road mobile sources 1%. Contributions from NO_x sources consist of the following: point sources 64%; ; area and non-road sources 21%; on-road mobile sources 14% and biogenic sources 1%.

Figure 2.8-1 2000 VOC Emissions in BPA

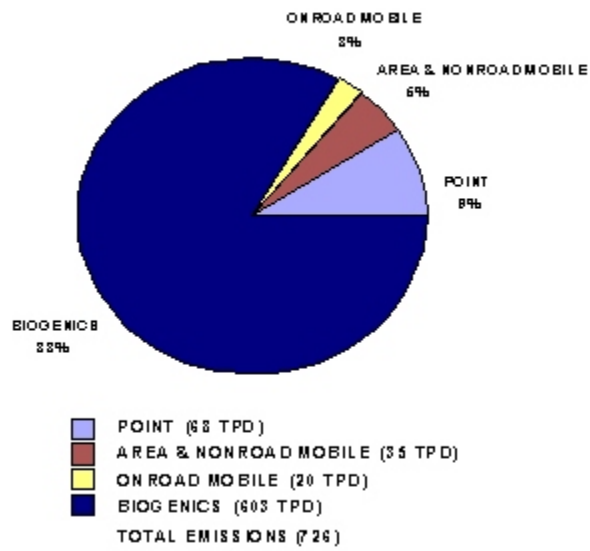


Figure 2.8-1 2000 VOC Emissions in BPA

Figure 2.8-2 2000 NO_x Emissions in BPA

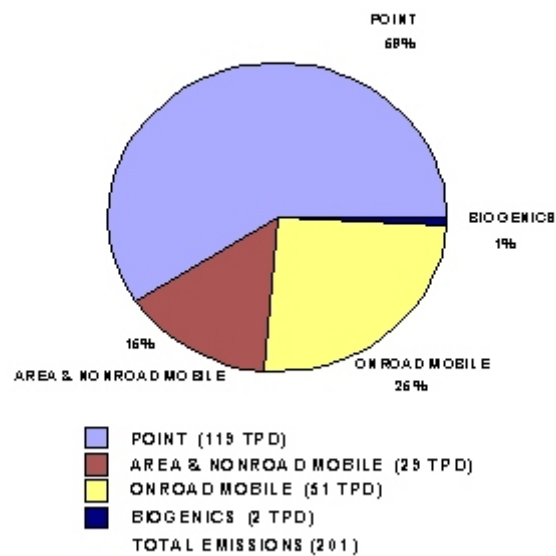


Figure 2.8-2 2000 NO_x Emissions in BPA

Figure 2.8-3 2007 VOC Emissions in BPA

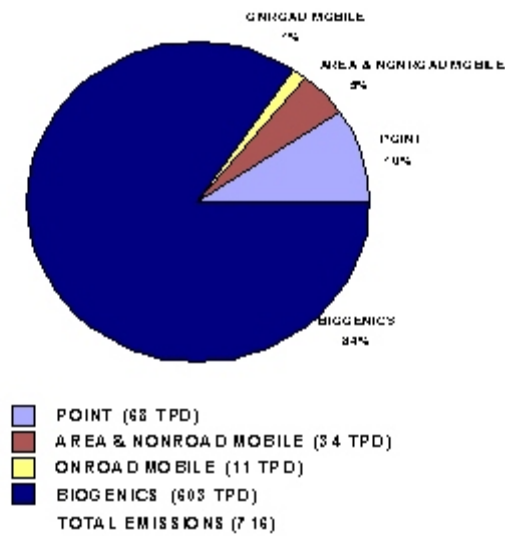


Figure 2.8-3 2007 VOC Emissions in BPA

Figure 2.8-4 2007 NO_x Emissions in BPA

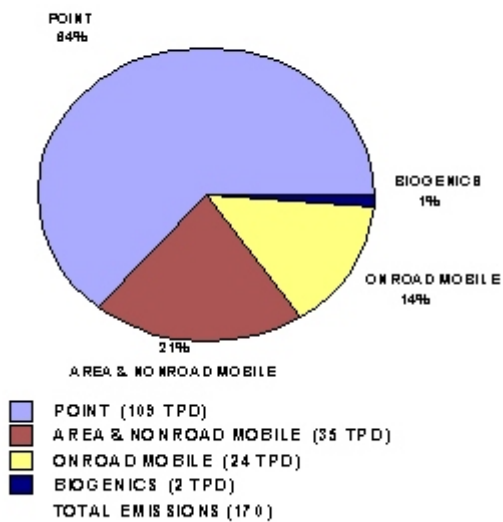


Figure 2.8-4 2007 NO_x Emissions in BPA